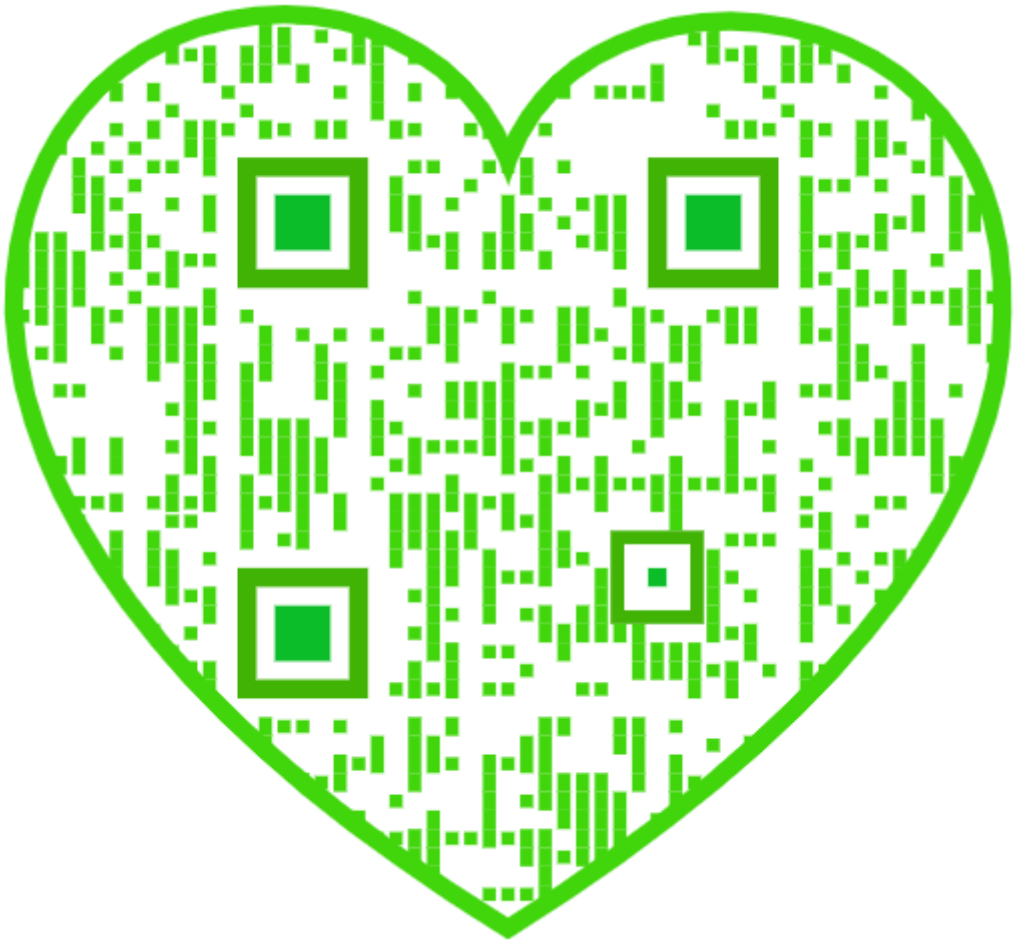
TEACHING BOYS AND GIRLS HOW TO STUDY

LB
1049
.Z5
1918

P. J. ZIMMERS



Class _____

Book _____

Copyright No. _____

COPYRIGHT DEPOSIT.

Teaching Boys and Girls How to Study

Being a brief treatment of the training of pupils in right habits of study through the problem method of teaching

P. J. ZIMMERS, A. M.
SUPERINTENDENT OF CITY SCHOOLS
MANITOWOC, WIS.

The Parker Educational Co.
Publishers
Madison, Wisconsin

"To me the end of education for the classroom is more and more clear. It should be straight thinking. The power to think clearly and straight comes from proper training. It is most successful when that training is obtained through self-help, which underlies the best work."—S. C. Armstrong, Hampton Institute.

JUL 10 1918

Copyright 1918
By P. J. Zimmers

THIRD EDITION

©CLA502010

INTRODUCTION

THE article by Mr. Zimmers of Manitowoc seems well worth putting in more available form than that in which it was first printed. I think no one will resent the statement that with some notable exceptions superintendents and principals, not only in Wisconsin but everywhere, have been falling far short of 100 per cent efficiency in the matter of supervision of grade work. The difficulty has been that most superintendents and principals have not been trained for it and do not know how to supervise, and not knowing how to supervise elementary work, and not being exactly willing to admit to themselves that such was the case, it is an easy matter to come to the conclusion that they do not have time to do it. Such is the subtlety of the human mind; such the manner in which we deceive ourselves.

I welcome and wish to encourage everywhere the attempt at real supervision, and it matters little by what route one travels in arriving at the goal.

Mr. Zimmers gets his inspiration from McMurry, Earhart, Strayer, and others. This is a splendid source of inspiration. Mr. Zimmers finds

that efficiency in the classroom in his schools has been greatly increased by the efforts of himself and his corps of teachers, through a persistent and intelligent effort to secure greater self-activity on the part of pupils and less (in the class hour) on the part of teachers. He believes, and I am confident that he is right about it, that the pupils of the Manitowoc schools now organize their knowledge better, that they develop more initiative, and that the results upon the whole are much better than in the past.

There is no doubt in my mind that the teachers in the schools of Wisconsin are working conscientiously and earnestly for the welfare and progress of their pupils; they are doing the best they can under the present order of things. There is little doubt in my mind, however, that they are falling below a possible standard of efficiency by at least 25 per cent. I could easily name many sorts of hindrance to the best results, but probably the chief one is the attempt to accomplish more than children's minds can properly assimilate. The result is a stuffing process, a memorizing process, in which teachers work at feverish heat to drive home the instruction.

The next important step in the progress of our city schools is the application of scientific (stand-

ardized) tests, so that superintendents may be able to form an accurate judgment as to the actual progress made in the classroom. It will be noted that Mr. Zimmers has applied some of these tests.

I have no doubt Mr. Zimmers' article here reprinted will prove helpful to many.

State Superintendent.

Madison, Wis., January, 1917.

THE CAPITOL PRESS PRINTING CO

TEACHING BOYS AND GIRLS HOW TO STUDY

The Schools Still Defective

ALTHOUGH the public schools are better and more efficient than they have ever been in their history, there is general dissatisfaction with them. From all sides shafts of criticism are hurled at them for their failure to do thorough work in the fundamentals and to train pupils in proper habits of study.

Recent surveys of the school systems in New York City; Butte, Montana; Portland, Oregon, and Cleveland, Ohio, indicate that the teaching in general is mediocre; that the teacher does far too much of the work, and that the pupils are trained to dependence and inactivity rather than to independence and self-activity.

The investigation of the habits of study of thousands of school children in the United States made by Lida B. Earhart clearly shows that the schools are not training pupils in right methods of study, thus failing in one of their most fundamental purposes.

The Courtis tests, given so widely in the schools

of the United States, show the effort made to measure in a definite way the character of the pupils' activity. The results of these tests were an eye-opener to superintendents, principals, and teachers, as pupils were found to be slow and inaccurate.

A SELF-SURVEY OF THE MANITOWOC METHODS

These widespread criticisms, so insistent and general, coming as they have from school officials and laymen, finally influenced this study of the underlying causes which prompted them.

In this study it was the good fortune of the writer to work under a teacher who presented an entirely new viewpoint in regard to school work, and it was due to his influence that this research work in the Manitowoc schools was undertaken. Whatever growth he has made, whatever help and inspiration have been given to the teachers, whatever development the pupils have attained, not only mentally but also morally, through this new method of conducting class work, is largely due to the inspiration of this great teacher.

Incidentally it may be said that school conditions in Manitowoc were good, the teaching was average, there was a very good corps of teachers and splendid co-operation, and results attained here could be duplicated in any city.

In the first place, before attempting any radical changes in the methods of teaching, an investigation was made of the teaching in the city schools and it was found that while in some cases the work was exceptional, in a general way subjects were

being handled as they had been for years previous. The teachers were doing most of the work, and the pupils were not doing the kind of work, either in preparing their lessons or in reciting, that would develop right habits of study. Out of a large number of recitations which were heard, three have been chosen—one in geography, one in arithmetic, and one in language—which bring out very forcibly the kind of work that was being done. It might be said here that a casual visitor would not see these conditions, as the first recitation cited clearly shows.

Observation of a Geography Class

October 13, 1912, a fifth grade class in geography reciting on the chapter *The Countries of North America* was visited. The pupils appeared to be doing good work; they were interested and asked one another questions which were well answered.

The next day observation was again made of the geography work in this grade. During these two recitations the pupils finished the chapter, which was brief and easy. At the close of the second recitation this question was put to the class: "What is the important thing in this chapter? In

other words, what is there in this chapter worth remembering?" One pupil said the important thing was the discovery of America. This fact was incidentally mentioned in the chapter, but was of very minor importance. Another thought the Revolutionary War was the important thing. This was also mentioned, but was of little importance. A third said the important thing was Russia selling Alaska to the United States, which also occurred in the chapter, but was not vital. Finally the pupils were asked to open their books, to do anything they chose in order to state the important thing in the chapter. One pupil finally said that the important thing was "the countries of North America." A boy was asked to step to a map, to name and point to the countries of North America. He named Alaska, Canada, the United States, the Mississippi Valley, and the Rocky Mountains.

Here was a class that had spent two days on a simple chapter in geography, had mechanically memorized everything in it without thought, had completed the work, but had failed to get the important thing—they could not name the countries of North America, which was perhaps the only thing worth remembering. In other words, they did not know how to study, and the character of this class work did not require them to study.

The work done these two days may be analyzed more definitely as follows:

Teacher activity	70%
Pupil activity	30%
Number of questions (estimated)	108
Memory questions (estimated)	102
Organization by pupils	0
Consideration of relative values by pupils	0
Pupil initiative	Fair
Aim of lesson	Knowledge
Accomplishment of aim	Poor

A Language Class

Another concrete example of class period inefficiency was a sixth grade in language dealing with the irregular verbs *lie* and *lay*. The pupils learned and recited the principal parts of these verbs and then filled out the blank sentences in the text-book with the proper forms. The next day the pupils were tested on their knowledge of these same verbs in specific situations. A book was placed on the desk and the question asked: "What have I done with the book?" Twenty out of thirty-six pupils said, "You have laid the book on the desk," and sixteen said, "You have lain the book on the desk." Then this question was asked: "Suppose

the book has been on the desk two hours; how would you express it?" Twenty-two said, "The book has been lying on the desk two hours," and fourteen said, "The book has been laying on the desk two hours." This showed ineffective teaching, because after *completing* the study of these verbs the pupils were unable to *use* them correctly in definite situations. This language period may be analyzed as follows:

Teacher activity	60%
Pupil activity	40%
Number of questions (estimated)	42
Thought questions	2
Memory questions	40
Organization by pupils	0
Pupil initiative	Poor
Aim of lesson	Knowledge
Accomplishment of aim	Poor

A Class in Arithmetic

An opportunity came one morning to determine the habits of study of pupils in a seventh grade. The teacher of this grade had just announced that her pupils had covered thoroughly the subject of percentage. These simple questions were then put to the class, ample time being given for thought:

What is 300% of $2? Only one gave the correct result.

What is 1/8% of $16? Not one gave the correct result. 1/8% was confused with 12½%.

The pupils were asked to write the following per cents in a column as decimals, with the decimal points under one another as though adding: 25%; 2½%; 250%; ¼%. Hardly a pupil could do this correctly.

Here was a class which had *finished* percentage but did not know the FUNDAMENTALS of the subject. No one was more surprised than the teacher herself at the inability of these pupils to apply what they were supposed to know of percentage. After a conference the teacher asked for a month in which to TEACH the subject. At the end of that time another test was given and the results were truly surprising.

A Test in the Hygiene Class

As a part of this investigation the following test* on the systematic study of an ordinary lesson in hygiene was given to the pupils in the sixth, seventh and eighth grades:

What is the subject of this lesson?

Write a list of the principal topics in it.

What do you think is the most important thing in this lesson?

What are your reasons for thinking this so important?

What other facts do you know about any of these topics?

What questions would you ask in regard to anything in this lesson that is not clear to you or that you would like to know more about?

The following are the results of the test:

Sixty-two per cent of the pupils found the most important thing in the lesson and sixty-five per cent found the list of principal topics. This simple test again showed that the pupils were not being trained in proper habits of study.

*"Teaching Children to Study."—Earhart, page 114.

AN EXAMINATION IN GEOGRAPHY IN BOSTON

To show that the results just cited are quite general in the United States the following is quoted from Contemporary Ideals in Education, by E. C. Moore, in the October, 1916, issue of Educational Review:

"An examination in geography was given in Boston a little while ago to 593 eighth grade students, 165 third year high school students and 87 normal school students. The list which was submitted to them was carefully prepared and included such questions on the geography of the United States as: Locate New York City on the map. Locate San Francisco on the map. Why do the states just east of the Rocky Mountains receive less rain than Massachusetts? Explain the way in which the flood plains of the Mississippi River have been formed. Why are these flood plains good for agriculture? And on the geography of Europe such questions as: Locate on the map two seaports of European Russia. Why does England import large quantities of wheat? Why has Germany become very important as a manufacturing country? Out of 845 pupils tested on the geography of Europe not a single pupil passed. In the test on the United States 8.7 per cent of the elementary school pupils, 4.8 per cent of the high school students, and 1.1

per cent, or one, of the normal school pupils passed."

A few days after this test had been given a meeting was held to discuss these results and it was brought to light that about 10,000 facts were brought to the attention of a public school child in his study of geography each year.

CORRECTING THE ERRORS OBSERVED THROUGH TEACHERS' MEETINGS

After this investigation of classroom work a series of eight general teachers' meetings was held, at which but one topic was discussed: Training pupils in habits of purpose, organization, initiative, independence, and self-activity—through the right conduct of the recitation or class period; in other words, training boys and girls in right habits of study. The following books were the basis of study:

How to Study and Teaching How to Study, by F. M. McMurry.

Teaching Children to Study, by Lida B. Earhart.

A Brief Course in the Teaching Process, by George D. Strayer.

The following are two typical lists of problems studied by teachers in advance and then discussed at these meetings, the responsibility being thrown upon the teachers:

A

1. (a) Be prepared to give a two-minute talk on the value of specific purposes.

(b) Name three recently used by you.

2. If you were conducting this meeting what

would be your leading question on the chapter on *Organization* in McMurry?

3. Why is a class period in which the teacher asks sixty questions which test the pupils' knowledge of facts recorded in the book not very valuable?

4. Distinguish fully between "qualitative and quantitative thoroughness."

5. (a) Explain definitely how the conduct of the class period determines largely the habits of study of pupils.

(b) What is the purpose of most class periods?

6. Give five questions which will aid pupils to grow in self-reliance and initiative.

B

1. State one thing you are now doing in your class work which you did not do before your study of McMurry. In other words, what have you applied to your own class work?

2. Should methods of study have precedence over the other aims of the school, even over the acquisition of knowledge?

3. What is the effect of teaching pupils to study properly:

(a) On the crowded curriculum?

(b) On the pupil?

(c) On the teacher?

(d) On the general spirit and discipline of the school?

4. Discuss what seems to you the most valuable of the four divisions of *The Basis for Judging Classroom Instruction.*

5. Memorizing: (a) What is the relation between thinking and memorizing?

(b) "Memorizing is a by-product of thinking instead of a substitute for it;" explain this statement fully;

(c) Give three suggestions for teaching pupils to memorize properly.

6. Explain definitely the moral value of training in overcoming intellectual difficulties. In other words, is there any relation between methods of instruction and moral development?

In addition to these general meetings, in each building school was dismissed at recess in the afternoon at least once a year and a demonstration recitation conducted by one of the best teachers in the building, showing how to develop right habits of study in pupils. This class period was then thoroughly discussed by the teachers of the building and the strong points brought to light. If it had not been for these building meetings and classes taught before the teachers, this kind of

teaching could never have become so successful. The following is a typical list of questions discussed at one of these meetings:

1. Give one illustration connecting your schoolroom work with real life.

2. (a) What is the fundamental weakness of the average recitation?

(b) How should the customary recitation be modified?

3. *Elements of a good question:

(1) Stimulates reflection;

(2) Adapted to the experience of pupils:

(3) Has "motor power" in drawing forth a complete thought. Discuss the above and give illustrations.

4. What is the most significant thing to you in the chapter, *The Using of Ideas as a Sixth Factor in Study?* Why?

5. (a) What is the most significant thing to you in the monograph, *The Modernization of Arithmetic?* Why?

(b) What omissions in Arithmetic would you recommend?

---

*The Question as a Measure of Efficiency in Instruction, by Romiett Stevens.

Near the close of the series of meetings the topic, **The Basis for Judging Classroom Instruction,* was taken up and thoroughly studied by all the teachers. At the last meeting the following was given to each teacher in typewritten form and thoroughly discussed, with the announcement that it was to serve as the basis for judging the classroom work of teachers:

1. Purpose of the class period.
2. Attention to relative values.
3. Organization.
4. Provision for developing initiative, independence, and self-activity in pupils.

Establishing a Standard

This standard serves two purposes: (1) as a basis for teachers in judging their own work; and (2) as a basis for supervisors in judging the work of the teachers. This standard is based on the activities of the PUPILS. The important thing is not what the teacher is doing but what the pupils are doing. The most common criticism of our school practice is that it does nothing but transmit facts; that it does not develop the ability to think. In the above standard "the acquisition of knowledge is made subordinate to the develop-

*See McMurry Standards.

ment in pupils of the power to work independently, intelligently, and economically." The schools should give a training for life that will fit the individual to do well the thing he undertakes, no matter what that thing may be.

1. As the character of the class period determines to a large extent the habits of study of pupils, it is logical to assume that a standard for judging it should have some relation to the factors of study. If the class period calls simply for facts, then only memory work on the part of pupils is required.

If, however, "the class period affords a fresh, sharp problem, the solution of which may be found in the lesson assigned for study, then it tests the pupils' ability to analyze and organize the subject matter of the book." They must then employ the factors of study, and memory work can not be made such a prominent factor. The first factor of study, then, is the recognition of a problem, purpose, or motive. All people, young or old, if they work effectively, must have an incentive.

We only think when we have a problem, the solution of which is worth while to us, is the purport of Dewey's work. This theory maintains that thinking ability is secured by having prob-

lems to think about and that thinking is tied up with the immediately useful. It places emphasis on the immediate end which Horace Mann advocated in 1842.

As the first factor in study is the recognition of a problem, so the class period should also deal with a problem or purpose. The purpose of most class periods must be to teach pupils how to study through the right conduct of the class period.

2. The class period should make provision for the appreciation of the relative value of things. This means the cultivation of good judgment, which is one of the most important abilities for pupils to acquire a successful living. Successful living means good selection, and good selection depends on good judgment. The class period should give ample opportunity for weighing values. If a teacher recognizes in primary reading that symbols are subordinate to thought, relative values have been considered. The two have been weighed, and the thought side has been decided on as the more important to the pupil. The purpose becomes the basis for judging relative values.

3. Organization insures thoroughness of comprehension. It signifies getting the main points, together with the supporting details, with the elimination of unrelated and unimportant details.

To have organization, the class period must deal in large units and must avoid isolated things. Broad questions must be put to the pupils, not detailed questions which break up the thought. A class period in which the teacher asks sixty questions which test the pupils' knowledge of facts recorded in the book is not very valuable, because they depend on these questions as a crutch to help them along when they should be able to proceed by themselves. Pupils need to learn a subject thoroughly and to talk on topics without help from the teacher. This will cause them to organize the subject matter. Business men say that graduates of high schools and even of colleges can not take a letter and word the principal idea in a single sentence or two. One employer declares that it is almost impossible to find a secretary who can take two or three sentences of direction and compose a letter to embody it. It is clearly evident, therefore, that the schools should develop in pupils the practical ability of selecting the main point and distinguishing it from unimportant details.

"Teach half as much and teach it twice as well. It has the same effect as picking off half the fruit of a laden tree."

4. One of the most important functions of

the class period is the development of initiative and self-reliance in pupils. These qualities are fundamental, not only in proper study, but they lie at the very basis of a democracy such as ours, and it is important that the school make provision for their development. In these days of hysteria it is essential that the future citizen be trained to stand on his own feet and to think for himself. This nation is safe for democracy only when it is composed of citizens who are trained to think independently and intelligently, to place evidence above mere opinion, to sift the false from the genuine, to verify conclusions which may appear to be sound and yet prove to be disastrous. This is the training which will eventually drive out the boss, the demagogue and the quack. Under this method of instruction, the school becomes an efficient, miniature democracy in which full and frank discussion by the pupils leads to the truth.

The boys and girls of our schools constitute the source from which a thinking citizenship of this character must be developed.

The ordinary man never trains himself to make a move unless some one tells him to do so. The advancement of successful men from position to position is due largely to this faculty of doing things without being told. Successful men have

the nerve and decision to act quickly and assume the initiative in times of emergency. Men who are most in demand are the ones who can stand up under responsibility and can be counted on to do the right thing without depending on somebody else.

How is initiative developed? Certainly not by having the teacher take all the initiative and responsibility in the conduct of the class period. To DEVELOP initiative, the pupils must EXERCISE initiative, and the class period must provide this opportunity. To secure this initiative, there must be a change in the conduct of the class period.

(a) The teacher must become less prominent and the pupils more prominent. The teacher must contribute less and demand greater contributions from the class. In other words, the pupils are to do most of the thinking, planning, and executing, while the teacher directs and stimulates. If the pupils are to do most of the work DURING the class period the teacher must do most of the work BEFORE the class period. One of the most valuable things a teacher can do to increase in teaching power is to prepare two or three thought questions for one or more class periods each day.

Questions such as the following develop right

habits of study by throwing the responsibility on the pupils:

What is the most important thing in the lesson?

What are your reasons for thinking this so important?

Write a list of the principal topics in the lesson.

Word the one principal thought of a page or lesson in a full sentence.

What important question is answered in this paragraph?

What object do you see in studying this chapter?

What bearing on life has it?

How did you study this lesson?

What interested you most?

Does the point you are considering bear upon the subject we are discussing?

Is it important enough to justify spending much time upon it?

Are we through with the lesson?

Why is Wisconsin the greatest dairy state in the Union?

Why is tobacco now grown intensively in the northern as well as in the southern states?

Why do famines occur in India every few years?

Why is it important to you to use "isn't" instead of "aint?"

For what trait is Columbus to be most admired?

If you were a voter and a senator to succeed Paul O. Husting was to be elected, how would you decide which of the candidates to vote for?

Why should the United States control the Panama canal?

(b) The aim of many class periods, especially in the lower grades, must be to teach pupils to master lessons in the teacher's presence, not primarily for knowledge but to learn how to study properly. Often the whole class with open books can profitably spend the time selecting the principal points, giving reasons for thinking them so important; and determining the underlying idea running all through the chapter. This kind of class period is an improvement on the mere recitation of text matter. Training in right habits of study is a pupil's greatest need and should, therefore, be the principal aim of many class periods. Training develops, but filling pupils with facts deadens. The test of a class period is not how many facts are learned, but is there growth, activity, development?

Of course, all class periods should not be conducted in the same way.

OBSERVATION OF RESULTS AFTER TWO YEARS OF APPLICATION

After this basis of judging classroom instruction had been in operation two years the character of the class period was completely changed in most cases; where before we had the same old-fashioned recitation, now we found an entirely different atmosphere. The attitude not only of the pupils but also of the teachers and even of the supervisors was different. It is difficult to convey on paper any adequate conception of this marked improvement in classroom instruction, but it is easily discernible even to the casual visitor.

As before, while any number of class periods could be enumerated to show this, three have chosen which most clearly show the kind of work being done at present. The results of ten average class periods have also been tabulated. (Table I.)

October 22, 1915, a seventh grade class in geography discussed the topic *Germany's Rapid Advance* under two heads:

1. Nature of the advance.
2. Reasons for it.
   (1) The government.
   (2) Education.

In the thirty-five minute discussion of the subject the teacher directed and stimulated the thought process of pupils, and talked not to exceed four minutes. The pupils virtually assumed responsibility, in some cases a pupil speaking for two or three minutes, and to the point. Education was given the most consideration. One boy talked fully three minutes on the continuation schools of Germany, although this was not in the text book at all, showing that they were supplementing what was in the lesson. In this connection the continuation schools and physical education in Manitowoc were fully discussed, showing that pupils were putting their ideas to use. The discussion waxed warm, the pupils talking directly to one another. Analysis of class period:

Teacher activity	10%
Pupil activity (estimated)	90%
Number of questions by teacher	5
Thought questions	4
Memory questions	1
Number of questions by pupils	30
Organization by pupils	Excellent
Consideration of relative values by pupils	Good
Pupil initiative	Excellent

Aim of lesson—to develop in pupils

"the power to work independently, economically and intelligently."

Accomplishment of aim.....Complete

This teaching was on a high plane, because pupils were actually solving a problem which to them seemed worth while, and were thus being trained in right habits of study. Moreover, they were happy, active, and enthusiastic in this work, and as a result the discipline was splendid, there being neither time nor inclination for extraneous affairs.

November 11, 1915, another seventh grade under another teacher was visited when there was a class period on the topic *The Industries of England.* The pupils divided this subject into five topics and assumed much of the responsibility. Analysis of this class period:

Teacher activity	12%
Pupil activity	88%
Number of questions by pupils (estimated)	40
Thought questions (estimated)	24
Memory questions	16
Organization by pupils	Excellent
Consideration of relative values by pupils	Good
Pupil initiative	Excellent

Aim of lesson—to develop in pupils
"the power to work independently,
intelligently and economically."
Accomplishment of aim .....Complete

In this same room the pupils gave work in oral arithmetic to their classmates which was on a par with the work usually done by teachers.

However there was more life and virility because the pupils themselves did the work.

October 22, 1915, a third grade class in language was visited. The class period was devoted to the study, description, and naming of a picture, *The Two Mothers and Their Families,* by Elizabeth Gardner. The general aim of the lesson was to interest pupils in good pictures and the special aim to teach them to tell stories from pictures. The picture was shown to the class, keeping the name concealed, and each pupil had an opportunity to study it. Then the question was asked: "What story have you to tell about what you have just seen?" There were eight stories told, several very good ones, stories that required thought. One of the best was as follows:

"The mother is sitting by the cradle. There is a little baby in the cradle. A little girl about three years old is standing near her mother. The mother is talking and telling the little girl something. The little girl is pointing to a hen and her flock of chickens

that are very near the cradle. The mother is telling the little girl to be kind to the chickens, never to harm them; to take good care of them, for they have as much right to live as we have, and the mother hen would feel just as sorry if something happened to her little chicks as her mother would if harm should come to the little one in the cradle. I think they are very poor, because the little girl does not seem to have much clothing."

After all the stories had been given, the question was asked: "Which story do you like the best, and why?" After this discussion the teacher asked the class to name the picture. After a short time one pupil gave the name *The Two Families*. It was decided that the name given was a good one and the class preferred it to the one Elizabeth Gardner had given. The questions asked by this teacher in the third grade threw the responsibility on the pupils, causing them to organize the subject matter. The pupils showed by their faces and actions that there was life, enthusiasm, happiness, and a fine spirit because they were doing something worth while. Analysis of the class period:

Teacher activity	35%
Pupil activity	65%
Number of questions by teacher (estimated)	22

Thought questions	14
Memory questions	8
Number of questions by pupils	10
Organization by pupils	Good
Consideration of relative values by pupils	Excellent
Pupil initiative	Excellent

Contrasting the Two Class Periods

For the purpose of contrasting the two class periods on pages 12 and 31, the former will be designated "A" and the latter "B."

In "B" the teacher activity was 10% and the pupil activity 90%. In the ordinary recitation these conditions are reversed, the teacher activity being about 90% and the pupil activity, 10%.

Romiett Stevens, of Teachers' College, Columbia University, investigated the relative teacher and pupil activity in twenty recitations and for this purpose twenty of the best teachers were selected. The twenty stenographic reports show that the average teacher activity was 64%, while the average collective pupil activity was 36%. Divide 36%, the average collective pupil activity, by 36, assuming that there are thirty-six pupils in the class, then 1% represents the average individual pupil activity while the teacher activity remains 64%. These figures are very conservative. A superintendent of a large system of schools doubted the accuracy of these results. He made an investigation, believing that the class period activity of the teachers under his supervision was much less than 64% and found to his great surprise that his teachers were actually doing from 85 to 95%

of the work. It is safe to say that in the average recitation the teacher activity is fully 80%.

In "B" the teacher asked only five questions of which four were thought questions. In "A" one hundred eight questions were asked by the teacher, of which one hundred two were memory questions. Miss Stevens also made an investigation of the average number of questions asked by the teacher during twenty recitations. The twenty stenographic reports show that the average number of questions asked by the teacher per recitation was one hundred five or about three every minute. Considering the results obtained by Miss Stevens, how can pupils be trained to think independently, to exercise individual judgment, under this bombardment of questions fired at the rate of three a minute?

What is the result? Verbal memorizing and superficial judgment. Even if the questions are answered, the answers will merely reflect the opinion of someone else, generally the author of the text-book; but unfortunately, in many cases, the teacher virtually answers her own questions by starting or completing the partial replies of pupils, or by tolerating short, incomplete sentences, phrases and often mere words, which not only defeats the purpose of study, but is the worst possible lan-

guage training. This practice even at its very best, makes of the pupils nothing more than intellectual butterflies.

A good question stimulates reflection and discussion, but questions shot at the ordinary rate give the pupils no time for assimilation or association of ideas.

It is now easy to see why class period "A" was a failure. The significant fact is that the teacher asked one hundred eight questions which called for *unrelated* facts.

The number of questions by pupils in class "B" was thirty. This is significant in view of what F. E. Spaulding, now Superintendent of the Cleveland Schools, found in Portland when he made a survey of the quality of teaching. This is what he writes after a study of the teaching in fifty-nine rooms in nine different buildings: "Except in one exercise in all my visits to grammar grade rooms, I heard not a single question asked by a pupil, not a single remark or comment made, to indicate that the pupil had any really vital interest in the subject matter of the exercise; on not a single occasion was there interested disagreement and active discussion over any point to show that the pupils were thinking independently. The *single exception* to which reference is made oc-

curred in an exercise in physiology, in which several alert boys cited numerous cases within their knowledge—and with no little degree of success—to refute the teacher's contention, unsupported by facts, that the use of tobacco shortens the life of the user."

Why do not pupils in school ask questions? Outside of school, a person seeking information asks questions, but in the schoolroom the well informed teacher asks the questions, which seems rather an anomalous situation. At first pupils will ask irrelevant and foolish questions, but this simply shows that they need this kind of training. It is always a great surprise to teachers to see the rapid and marked improvement in the quality of the questions asked by pupils.

It has been said that this takes time. Yes, training, development, growth, always take time. A fence can be built around a school in one day by a large force of men, but if a hedge is to be grown, it may require years. Mushrooms attain their full power in a night; oaks require decades. Rousseau, referring to the scientific method of thought in problems said, "May I venture to state here the greatest, the most important, the most useful rule in all education? It is not to gain time, but to lose it."

It is clearly evident, of course, that the teacher must always ask the vital, far reaching questions.

In "B" the organization by pupils was excellent, while in "A" there was no organization. This means that in "A" the pupils regarded all the facts in the entire chapter as of equal importance and mechanically memorized every point, however small. In "B," they selected the four salient ideas, together with the details necessary to support these ideas, which means that their judgment was being trained to select the essentials from the non-essentials. This kind of training is significant in view of what John Dewey, our greatest American philosopher, writes in his Moral Principles in Education: "We must also test our school work by finding whether it affords the conditions necessary for the formation of good judgment. Judgment as the sense of relative values involves ability to select, to discriminate. Acquiring information can never develop the power of judgment. Development of judgment is in spite of, not because of, methods of instruction that emphasize simple learning. I have heard an educator of large experience say that in her judgment the greatest defect of instruction today, on the intellectual side, is found in the fact that children leave school without a mental perspective. Facts seem to them

all of the same importance. There is no foreground or background. There is no instinctive habit of sorting out facts upon a scale of worth and of grading them. The child can not get power of judgment excepting as he is continually exercised in forming and testing judgments."

The aim of "B" was the training of pupils in right habits of study and as a result, they not only were trained, but they obtained the finest kind of organized knowledge. In "A" the aim was the acquisition of facts, and strange to say the pupils acquired neither essential facts nor training. It has recently been said that nine-tenths of the information acquired by pupils in school is forgotten, and only a portion of the remaining one-tenth is really digested in such a way as to be of any power. Of course, it is not expected that pupils will remember everything they learn in school, but in view of the above statement is it not worth while to put training first? If the training is placed first, it means that fewer topics are taken up, and that more time is given to pupils for assimilation, thus precluding the giving of innumerable irrelevant facts.

After a comparison of the above two class periods, this is a logical deduction.—the character of the instruction in the class period determines to

a large extent the habits of study of pupils. The way pupils study, depends on what is emphasized. The methods that are best to develop a sound knowledge of geography in pupils, will, as a rule, be the best to teach them how to study geography. The reason that mechanical memorizing is the main part of study in the elementary school, high school and university, is that reproduction is the primary thing required. If boys and girls find that the teachers' questions asked for a reproduction of the text, they will memorize before thinking and without thinking. If, however, there is a thought question, it will cause them to organize and analyze the subject matter of the book, and then mechanical memorizing can not occupy such a prominent part.

In addition to the investigation of the classroom work concrete tests were given to discover improvements in the habits of study of pupils. For instance, March 1, 1916, a test on the systematic study of an ordinary lesson was given to four hundred pupils in the sixth, seventh and eighth grades, with the result that this time 82% found the most important thing in the lesson and 85% found a list of the principal topics.

When this same test was given to thousands of school children in various cities of the United

States by Miss Earhart a few years ago, only twenty-seven pupils out of every hundred found the most important thing in the lesson and only thirty-three out of every hundred made an adequate list of the principal topics, although the test was on a simple lesson in geography.

Table I—The Results of Ten Average Class Periods.

LESSON	Teacher Activity	Pupil Activity	Number Questions by Teacher	Thought Questions	Memory Questions	No. Quest'ns by Pupils Estimated	Organization by Pupils	Consideration of Values by Pupils	Pupil Initiative	Aim of Lesson	Accomplishment of Aim
Seventh Grade Reading	8	92	6	5	1	16	Excellent	Good	Excellent	*	Complete
Seventh Grade Geography	11	89	8	4	4	20	Good	Excellent	Excellent		Complete
Eighth Grade History	10	90	12	8	4	12	Good	Excellent	Excellent		Good
Eighth Grade Hygiene	12	88	16	10	6	21	Excellent	Good	Good		Complete
Eighth Grade History	14	86	14	8	6	14	Good	Good	Excellent		Good
Fifth Grade Geography	20	80	30	20	10	18	Good	Good	Excellent		Good
Sixth Grade Language	20	80	32	18	14	9	Good	Good	Excellent		Good
Fifth Grade History	15	85	20	12	8	21	Good	Good	Excellent		Good
Fourth Grade Geography	20	80	30	18	12	10	Good	Good	Excellent		Excellent
Sixth Grade Geography	24	76	20	12	8	17	Excellent	Fair	Good		Good

*The aim of all these class periods was to train pupils in proper habits of study.

Table II—Courtis Tests.

The Courtis tests in arithmetic were also given as a part of this research. They were given in 1914 and again in 1916, with the following results in class scores:

1914	ADDITION		SUBTRACTION		MULTIPLICATION		DIVISION	
	Attempts 8	Rights 5	Attempts 8	Rights 6	Attempts 8	Rights 5	Attempts 6	Rights 5
SIXTH GRADE								
1916	10	6	10.3	8	9.3	7	8.4	7.3
General class scores of thousands of pupils in the United States.	8	4.4	8.9	6.1	7.2	4.5	5.8	4.3
SEVENTH GRADE								
1914	9	6	10	8	9	6	8	7
1916	11.6	8.6	13	11.2	11	8.6	10.2	9.2
General class scores of thousands of pupils in the United States.	8.9	4.7	10.2	7.8	8.4	5.2	7.6	5.8
EIGHTH GRADE								
1914	10	7	11	9	10	8	12	11
1916	13.8	10.8	15.8	13.8	14	11.3	14	13
General class scores of thousands of pupils in the United States.	9.7	5.6	11.7	8.4	9.9	6.4	9 2	6.3

The above results show that in 1916 there was a gain of twenty-nine per cent in speed and thirty-eight per cent in accuracy over 1914. The tabulation also shows that there was a gain of thirty-four per cent in speed and sixty-four per cent in accuracy over the results obtained by thousands of pupils in the United States according to tests made and tabulated by S. A. Courtis.

EFFECTS OF THIS WORK

This concerted action of all the teachers to train pupils in proper habits of study has had an effect: (1) on the pupils; (2) on the teacher; (3) on the course of study; (4) on the general spirit and discipline of the schools.

(1) The character of this work engenders responsibility and self-activity on the part of the pupils. They are doers. Instead of looking and listening they are planning, working, and executing, while the teacher directs and stimulates. They develop mental habits and mental and moral fibre instead of being filled with an enormous, crushing weight of useless facts, not more than one-fourth of which will be of any value to them later in life. This kind of work trains to thoroughness, accuracy, and self discipline. It develops good, strong character—one of the main purposes of education under a democracy. It means "a live pupil in a live school, learning to live by living each day in the school."

(2) Under this plan of teaching, the pupils largely assume the responsibility for the conduct of the class work, thus supplying the steam. The teacher is no longer a taskmaster but a guide who stimulates and directs pupils in an enterprise in

which they have a common interest. The teachers say that the work is hard under this new plan, but that it is interesting, vitalizing, refreshing work that brings results.

This type of instruction causes the teacher as well as the pupils to grow. It is clearly evident that the teacher's knowledge must be more comprehensive in such a procedure than in the old type of recitation, for the reason that the discussion in many instances goes beyond the limits of the text book. The teacher, therefore, must be more studious in order to have the auxiliary facts and to be able to cite authorities at the proper time. This causes a wider reading on the teacher's part than in the question and answer type of recitation.

This type of instruction automatically removes the most grievous fault of teachers—the practice of repeating the answers given by pupils. When teacher and pupils discuss their problems together, every answer is addressed to the class, not to the teacher.

(3) Much is said at present throughout the United States, and truthfully, that the course of study is overcrowded and that the fundamentals are neglected. The overcrowded course has come to stay and every generation will add to it. There

is but one remedy, and that is teaching boys and girls how to study. The teachers are trained to select the large, vital topics and the pupils are trained in the class period to select the basic, salient facts with the details necessary to support them and then to eliminate the rest. This trains their judgment to determine the essentials from the non-essentials. In these days of wildcat speculation it is important to train pupils to detect the spurious from the genuine.

Under this procedure the teaching is more effective, because pupils cover the ground about ONE-HALF as fast as formerly, but spend TWICE as much time upon a topic. Teachers and pupils have learned that the only condition under which any topic is really digested is that the mind dwell upon it for some time. This means assimilation, and assimilation always takes time, and as a result there is usually not enough time to cover a course of study, thus forcing teachers and pupils to select the essentials.

(4) By using this method of teaching, the monarchial type of school ends and a new democracy takes its place. The pupil ceases to look upon the laws of the school as impositions from without but feels a new respect for the value of law to the school community in which he lives. By

utilizing the corporate life of the school as that great teacher, Thomas Arnold utilized it, all problems in discipline are reduced to a minimum.

Finally, this method influences to a marked degree the moral atmosphere of the school and makes "the work of the school the ethical instrument for character."

Comments of Pupils

March 1, 1916, the pupils in one of the seventh grades were asked to write their reaction on this new way of conducting classroom instruction, and the following are some of their statements:

"It makes us use our minds during the recitation."

"It makes me study more."

"It teaches me to think for myself."

"I get more out of my lesson."

"We learn to ask questions that have some meaning."

"Pupils find out things for themselves."

"It teaches me to find the most important things."

"I like to hear the things others have read in other books and tell."

"It helps me to be accurate."

"It makes me use all the time I have.

"I learn to use good English."

"I am glad to hear things that others get out of a lesson that I did not get."

The following comments were written by pupils of another seventh grade, January 29, 1917:

"I like this way very much because it is of value to us. We have a chance to recite, give our ideas and tell what is right or wrong."

"I like the method we use in geography, reading, and other studies, because it makes me think. The one important thing in the lesson stands out more than the smaller things. If I know the important thing the other things sort of group around it."

"It makes us think and reason. I cannot criticise our new way and I hope they keep it. The old way we had kept the bright children busy, while the others sat there and naturally had low reports. I think some children do not understand what they read, but get the meaning by our new method."

"I like this method because everybody gets an equal chance. The value of picking out the most important thing, to me, is that it makes me think more. It is more important to remember the big things than it is to remember the small ones."

"I think the method of picking out the most important thing in the topic in geography has been of value to me because it makes me think harder about the lesson, and I get some important fact about every topic."

"I like the system we have in geography for several reasons. One is that we select the most important thing in a topic. It helps to fix it in our minds more clearly. Our brain is not made to hold as much as the book holds and when we find the most important things we think more. I think the fact that it makes us think is most important."

"I like this system of teaching because the lessons are more interesting and I learn many more things from the questions the other pupils ask, and every child gets an equal chance."

"I think this method of teaching is very good, as it makes me think or learn how to study and also to talk to the class. It will not be so hard to learn next year's work."

"If you do not know what anything means you have

to ask questions in order to learn the answer. If a pupil is asked a question, he must think very hard to answer it. If you do not know what the word means you have to look it up in the dictionary or ask the class. I think it helps me a great deal."

"This method of teaching teaches me to think, to use my brain, to answer and to ask questions."

"This method of teaching has taught me to think and reason for myself. The children's questions can get at certain parts of the studies that learned people do not always think of."

The following statement was written by a boy who had been in the local schools only one week.

"I like this method of the recitation because it gives every pupil a chance to say something. It helps me when I am reciting because I would much rather have the pupils correct me than the teacher, and it shows me my mistakes. I have been in nine different schools besides this one and had many different methods, but this is the best. I have had poorer deportment than here as a result of the teachers' asking and correcting everything."

BIBLIOGRAPHY

Betts, G. H. .....Classroom Method and Management.

Colvin, S. S. .....An Introduction to High School Teaching.

Dewey, John .....Moral Principles in Education.

Dewey, John .....Democracy in Education.

Earhart, Lida B. .....Types of Teaching.

Earhart, Lida B. .....Teaching Children to Study.

Eliot, Charles W. ....The Concrete and Practical in Education.

Hall, J. W.-A.C.....The Question as Factor in Teaching.

James, William .....Talks to Teachers on Psychology.

King, Irving .....Education for Social Efficiency.

McMurry, F. M. .....Elementary School Standards.

McMurry, F. M. .....How to Study and Teaching How to Study.

McMurry, C. A. .....Conflicting Principles of Teaching.

McMurry, C. A. .....Hand-book of Practice for Teachers.

McMurry, C. A. .....Elements of General Method.

McMurry, F. M.-C. A..The Method of the Recitation.

Moore, E. C. .....What is Education?

Parker, S. C. .....Methods of Teaching in High Schools.

Pearson, F. B. .....The Vitalized School.

Sadler, M. E. .....Moral Instruction and Training in Schools.

Spencer, Herbert .....Education.

Stevens, Romiett .....The Question as a Measure of Efficiency in Instruction.
Strayer, G. D. .....A Brief Course in the Teaching Process.
Swift, E. J. .....Learning by Doing.
Thorndike, E. L. .....Principles of Teaching.
Wilson, H. B.-G. M...The Motivation of School Work.

OUTLINE

Introduction 3
Surveys of School Systems..... 7
Local Survey of Methods of Teaching..... 9
Observation of a Geography Class.....10
Observation of a Language Class.....12
Observation of a Class in Arithmetic.....14
Results of a Test in a Hygiene Class.....15
An Examination in Geography—Boston.....16
Correcting Errors Through General Teachers' Meetings 18
Correcting Errors Through Building Meetings..20
Establishing a Standard for Judging Instruction 22
Class Periods Showing Improved Results.....30
Contrasting Two Class Periods.....36
Table I—The Results of Ten Average Class Periods 44
Table II—Courtis Tests.....45
Effects of this Work.....46
Comments of Pupils.....50
Bibliography 53

LIBRARY OF CONGRESS
0 021 336 520 4